## REMARKS/ARGUMENTS

Claims 1-40 were pending of which Claims 1, 2, 7, 10-13, 15, 16, 18, 19, 21-29, 31, 33-36 and 38-40 were rejected and Claims 3-6, 8, 9, 14, 17, 20, 30, 32, and 37 were objected to. Claims 1-3, 6, 7, 9, 19, 24, 28, 29, 30, and 36 have been amended and Claims 20 and 37 have been cancelled.

Claim 1 has been amended to recite "calculating a current frame bit rate using the complexity ratio of the current frame" and "calculating a current frame bit rate using the complexity ratio of the current frame". These amendments are supported by the specification at paragraph [0012], which recites "a frame complexity calculation unit calculates a complexity ratio for the current frame."

Claim 2 has been amended to recite "calculating a local complexity of the current frame" and "calculating a global complexity of a plurality of frames". These amendments are supported by the specification at paragraph [0028] which recites "Frame complexity calculation unit 720 calculates picture complexity for the current frame (i.e. local complexity) as well as tracking the picture complexity of previous frames (i.e. global complexity)."

Claim 3 has been amended to recite "the calculating a local complexity of the current frame" to properly match amended Claim 1. This amendment is supported for the same reason given above with respect to Claim 1.

Claim 6 is amended to remove "Global_CX", which was an obvious and inadvertent clerical error.

Claim 7 is amended to remove "factor" to correct an obvious and inadvertent clerical error.

Claim 9 is amended to remove "C_RATIO", which was an obvious and inadvertent clerical error.

Claim 19 is amended to include the limitations of Claim 20. This amendment is supported by at least original Claims 19 and 20.

Claim 24 has been amended to recite "frame complexity calculation unit configured to calculate a complexity ratio of the current frame" and "a current frame bit rate calculation unit coupled to receive the complexity ratio of the current frame". These amendments are supported by the specification at paragraph [0012], which recites "a frame complexity calculation unit calculates a complexity ratio for the current frame."

Claim 28 has been amended to recite "means for calculating a complexity ratio of the current frame" and means for calculating a current frame bit rate using the complexity ratio

SILICON VALLEY
PATENT GROUP LLP

18805 Cox Avenue.
Suite 220
Saratoga, CA 95070
(408) 378-7777
FAX (408) 982-8210

of the current frame." These amendments are supported by the specification at paragraph [0012], which recites "a frame complexity calculation unit calculates a complexity ratio for the current frame."

Claim 29 has been amended to recite "means for calculating a local complexity of the current frame" and "means for calculating a global complexity of a plurality of frames". These amendments are supported by the specification at paragraph [0028] which recites "Frame complexity calculation unit 720 calculates picture complexity for the current frame (i.e. local complexity) as well as tracking the picture complexity of previous frames (i.e. global complexity)."

Claim 30 has been amended to change "method" to –system—and the change "Claim 28" to –Claim 29—to correct obvious and inadvertent clerical errors.

Claim 36 is amended to include the limitations of Claim 37. This amendment is supported by at least original Claims 19 and 20.

The Examiner objected to Claims 3-6, 8, 9, 14, 17, 20, 30, 32, and 37 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claims 19 has been to include the limitation of Claim 20 and Claim 36 has been amended to include the limitation of Claim 37.. Thus, the scope of Claims 19 and 36 are equivalent to the scope of original claims 20 and 37 respectively.

No new matter has been added in the claims.

Claim Rejections – 35 U.S.C. §112

Claims 11 and 12 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner stated that "Values of the frame quality constant, frame complexity, and coding efficiency coefficient are shown in the specification but these terms are not defined and how these values were obtained is not described within the disclosure. To expedite this case to allowance, Applicants have cancelled Claims 11 and 12 thus the Examiner's rejection is been rendered moot. However, Applicants respectfully submit that the Claims 11 and 12 are enabled in the Specification. For

example, frame complexity is described in paragraph [0031] and a specific formula for frame complexity is provided in equation EQ1.

Claim Rejections – 35 U.S.C. §102

Claims 1-2, 7, 15-16, 18-19, and 21-23 were rejected under 35 U.S.C. §102(b) as being anticipated by Uz (US 5682204).

With regards to Claim 1, the examiner states that:

> Uz discloses a method of quantization and rate control based on the activity (complexity) in a video sequence. In lines 4-10 of column 13 it is disclosed that the amount of bits distributed to a frame is proportionally distributed between the macroblocks based on the proportion of the activity (complexity ratio) for the given frame the bit budget and hence quantization for that particular portion are determined.

Applicants respectfully submit that the Examiner's interpretation of Uz is misguided. Specifically, Uz (as well as Applicants' disclosure) includes both "activity" and "complexity" which are not the same. For example, Uz defines a "total activity $ta_n$" in col. 8 lines 57-65 and a "complexity measure $C_i^{(k)}$" in equation (3) (Col. 12 lines 58-67). As the Examiner cited Uz "distributes its budget among its macroblocks proportional to the total activity measure $ta_n$ of each macroblock n" (Uz Col. 13, lines 4-6). Thus Applicants respectfully submit that Uz does not teach or suggest "calculating a <u>complexity ratio of the current frame</u>" (emphasis added) and "calculating a current frame bit rate using the complexity ratio of the current frame" as recited in Claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 1. Furthermore Applicants respectfully submit that Claims 2-18 which depend from Claim 1 are likewise allowable.

Furthermore, Applicants respectfully submit that Claim 2 is patentable in its own right. With regards to Claim 2, the Examiner stated that "Based on the disclosure of Uz it is clear to one of ordinary skill in the art that the Local complexity (activity) is the activity within each macroblock and the Global Complexity (activity) is that which occurs in each frame." However, Claim 2 has been amended to recite "calculating a local complexity <u>of the current frame</u>" (emphasis added) and "calculating a global complexity <u>of a plurality of frames</u>" (emphasis added). Thus Applicants respectfully submit that the "local complexity" and "global complexity" as recited in Claim 1 differs from that taught in Uz.

SILICON VALLEY
PATENT GROUP LLP

18805 Cox Avenue.
Suite 220
Saratoga, CA 95070
(408) 378-7777
FAX (408) 982-8210

Serial No.10/714,501

However, Claim 1 has been amended to more clearly distinguish from the teachings if Uz. Specifically, Claim 1 has been amended to recite "calculating a complexity ratio of the current frame" (emphasis added).

With regards to Claims 19 and 21-23 the Examiner cited the rejection of Claims 1, 15-16 and 18. However the Examiner also stated that Claim 20 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. Claim 19 has been amended to include the limitation of Claim 20. Thus, Applicants respectfully submit that claim 19 is allowable. Accordingly Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 19. Furthermore, Applicants respectfully submit that Claim 21-23, which depend from Claim 19, are likewise allowable.

Claim Rejections – 35 U.S.C. §103

Claims 10 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Uz in further view of Golin (US 5265180). However, Applicants respectfully submit that the rejection of Claims 10 and 13 are rendered moot by the amendment of Claim 1, from which Claims 10 and 13 depend. Furthermore, Applicants respectfully submit that Claims 10 and 13 are patentable for at least the reasons given above with respect to Claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 10 and 13.

Claims 24-29, 31, 33-36, and 38-40 were rejected under 35. U.S.C. 103(a) as being unpatentable over Uz. Specifically, the Examiner stated that

> Instant claims 24-29, 31 and 33-36, and 38-40 claim the apparatus that performs the method of instant claims 1-2, 7, 10, 15, 19-20, and 22-23. As per the previous rejections of instant claims 1-2, 7, 10, 15, 19-20, and 22-23 Uz has disclosed the method and at the time of the invention it was known by one of ordinary skill in the art how to use a PC and write software as to perform the method of Claim 1.

Claim 24, which is "the apparatus that performs the method of " Claim 1 is amended to match the amendment of Claim 1. Thus, Applicants respectfully submit that Claim 24 is patentable for the reasons given above for Claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 24. Furthermore, Applicants respectfully submit that Claims 25-27, which depend on Claim 24, are likewise patentable.

Serial No.10/714,501

Claim 27, which is also "the apparatus that performs the method of " Claim 1 is amended to match the amendment of Claim 1. Thus, Applicants respectfully submit that Claim 27 is patentable for the reasons given above for Claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 27. Furthermore, Applicants respectfully submit that Claims 28-25, which depend on Claim 27, are likewise patentable.

Claim 28, which is "the apparatus that performs the method of" Claim 2 is amended to match the amendment of Claim 2. Thus, Applicants respectfully submit that Claim 28 is patentable for the reasons given above for Claim 2. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 28.

The Examiner stated that Claim 37 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. Claim 36 has been amended to include the limitation of Claim 37. Thus, Applicants respectfully submit that claim 36 is allowable. Accordingly Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 36. Furthermore, Applicants respectfully submit that Claim 38-40, which depend from Claim 36, are likewise allowable.

Serial No.10/714,501

# CONCLUSION

Claims 1-3, 6, 7, 9, 19, 24, 28, 29, 30, and 36, have been amended and Claims 11, 12, 20 and 37 have been cancelled leaving Claims 1-10, 13-19, 21-36, and 38-40 pending. For the above reasons, Applicants respectfully request allowance of all pending Claims. Should the Examiner have any questions concerning this response, the Examiner is invited to call the undersigned at (408) 857-0559.

Respectfully submitted,

*Edward Mao*

Edward S. Mao
Attorney for Applicant(s)
Reg. No. 40,713

Serial No.10/714,501